

129B
AW #5



*Safety Kleen
Wichita, KS*

December 31, 1991

RECEIVED

JAN 06 1992

PRMT SECTION

Regional Administrator
USEPA Region VII
726 Minnesota Avenue
Kansas City, KS 66101

ATTN: Mr. Gene Evans

RE: Quarterly Progress Report, Partial Facility Closure and
Corrective Action, Safety-Kleen Corp. Branch Service
Center, Wichita, KS (KSD000809723)

Dear Sir:

This quarterly progress report is being submitted to comply with reporting requirements in Section 4 of Part II, the Hazardous and Solid Waste Amendments (HSWA) Permit and on pages VI-28, VI-29, and VII-8 of the approved Partial Facility Closure Plan. The conditions of the HSWA permit are addressed in modifications to the RCRA Interim Status Partial Closure Plan, which has been reviewed and approved by the Kansas Department of Health and Environment (KDHE). This quarterly report covers the period from October 1, 1991 to December 31, 1991.

Work Completed During Reporting Period

1. S-K prepared a "Progress Report, Partial Facility Closure Activities, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas," (TriHydro Corporation, November 20, 1991) which details closure activities at the site to date. The progress report has been submitted to KDHE and USEPA Region VII.
2. S-K conducted a baseline soil quality study in October 1991 in conjunction with installation of a soil vapor extraction system (SVES) at the site. The baseline study consisted of soil sampling, screening and analysis at three borehole locations for vent wells VE-2 to VE-4. One soil sample was collected from each borehole for laboratory analysis in accordance with the approved partial facility closure plan and modifications. The results of the baseline study are presented in Attachment A.
3. S-K conducted a quarterly ground-water quality monitoring event in October 1991. Ground-water samples were obtained



from five monitoring wells (A-1 to A-5) and submitted to the laboratory for analysis. In addition, field blank and equipment blank samples were submitted to ensure QA/QC of the analyses. The results of the monitoring event are presented in Attachment B.

4. A full-scale SVES was constructed at the site in general accordance with the approved partial facility closure plan and modifications. The SVES consists of four vent wells and a 7.5 hp vacuum pump (see Figure A-1, Attachment A for well locations). The system has operated continuously since startup on October 27, 1991.
 - a. The activities associated with startup of the SVES are detailed in the progress report on closure activities (TriHydro Corporation, November 20, 1991).
 - b. The latest operating records of the SVES are presented in Attachment C.
 - c. The vapor emissions were monitored on December 9, 1991, to evaluate the performance of the SVES. Based on photoionization detector (PID) readings, the mineral spirits removal rate has stabilized at approximately 20 to 25 percent of the rate measured during startup, which is typical of SVES performance.
 - d. No modifications to SVES operation have been implemented during this reporting period.
5. S-K completed decontamination and dismantling of the former return/fill station in October 1991. The details of the return/fill station closure are discussed in the progress report on closure activities (TriHydro Corporation, November 20, 1991).
6. S-K is continuing to negotiate with the adjacent landowner (immediately south of the site) to obtain an access agreement for the purpose of installing offsite ground-water monitoring wells. In a letter dated November 20, 1991, S-K requested possible assistance from KDHE or USEPA in procuring offsite access.
7. S-K is working with KDHE to develop a mutually acceptable plan for completely defining the horizontal and vertical extent of ground-water degradation.
8. S-K is in the process of completing a site-specific health-based risk assessment to establish closure perfor-

mance standards at the site. This risk assessment is expected to be completed and submitted in January 1992.

9. Well A-4 contains free-floating product (reference Table B-1 of Attachment B). S-K regularly bailed monitoring well A-4 in October 1991 to remove as much free-floating hydrocarbon product as possible. S-K estimates that approximately 0.5 gallons of free product were removed during October 1991. The water and product generated from Well A-4 was processed through the S-K spent mineral spirits management system.

Summaries of Findings

1. The soil samples (VE-2 through VE-4) collected during the October 1991 baseline soil quality study were analyzed by GTEL Laboratory, Wichita, Kansas. The baseline/soil quality results compare well with data generated during the previous sampling and analysis activities (Ref. Progress Report, November 20, 1991). The analytical data is presented in Attachment A and summarized in Table A-1.
 - a. The baseline soil quality data confirmed that subsurface degradation in the vicinity of the SVES consists primarily of mineral spirits. Concentrations of mineral spirits ranged from non-detectable to 4000 mg/kg.
 - b. Other organic constituents detected in the soil during the baseline study included xylenes and naphthalene. These constituents are consistent with the soil quality data generated during the previous sampling programs.
 - c. Inorganic constituents which were detected in the soils included chromium (1.3 mg/kg to 3.9 mg/kg) and lead (non-detectable to 3.4 mg/kg). These concentrations are less than background conditions established at this site.
2. Water levels measured on October 14, 1991, confirm a southeasterly ground-water flow direction. Ground-water samples collected during the October 1991 quarterly monitoring event were analyzed by GTEL Laboratories, Wichita, Kansas.

- a. Organic constituents were not detected in October 1991 samples from up-gradient well A-1 or down-gradient well A-5.
 - b. Organic constituents detected in October 1991 samples from one or more of the down-gradient wells (A-2 through A-4) include mineral spirits, 1,2-dichloroethane, 1,2-dichloroethene (total), toluene, ethylbenzene, xylenes, 1,2-dichlorobenzene and 1,4-dichlorobenzene.
 - c. Mineral spirits was detected at a concentration of 600 mg/L on the October 1991 sample from Well A-4. The laboratory reports indicate that a hydrocarbon material was detected in the October 1991 samples from wells A-2 and A-3 which cannot be qualitatively identified as mineral spirits. S-K is working with GTEL laboratories to qualitatively identify this material.
 - d. The concentrations of volatile organic constituents detected in the October 1991 samples were all less than USEPA maximum contaminant levels (MCL).
 - e. Total cadmium was not detected in the October 1991 samples from wells A-1 through A-5.
 - f. Total chromium was detected in the October 1991 samples from up-gradient Well A-1 and down-gradient Well A-5. The concentration of total chromium detected in the October 1991 sample from up-gradient Well A-1 (0.98 mg/L) exceeded the MCL of 0.10 mg/L.
 - g. Total lead was detected in the October 1991 samples from up-gradient Well A-1 and down-gradient wells A-2, A-4, and A-5. The concentration of total lead detected in the October 1991 sample from Well A-4 (0.150 mg/L) exceeded the MCL of 0.05 mg/L.
3. The hydrocarbon thickness measured at Well A-4 on October 14, 1991, was initially 0.4 feet. After regular bailing in October 1991, the free-floating hydrocarbon thickness was reduced to 0.02 feet.
 4. The results of vapor sampling and analysis data generated during SVES startup (October 1991) are presented in the progress report on closure activities (TriHydro Corporation, November 20, 1991). Based on laboratory analysis,

the maximum SVES removal rate was 2.4 lb/hr mineral spirits during startup.

5. The results from the December 1991 SVES monitoring event indicate that the mineral spirits removal rate has stabilized at approximately 20 to 25 percent of that measured during startup (average 2.2 pounds/hour during startup). A decrease and stabilization of the removal rate is typical of the performance of soil vapor extraction systems. As of the end of this reporting period, S-K did not have sufficient data to estimate the total mineral spirits removed. S-K intends to collect another vapor sample for laboratory analysis in January 1992.

Summaries of Problems

1. Additional monitoring wells will be installed offsite to identify the extent of ground-water quality degradation. S-K is in the process of negotiating an agreement with the adjacent property owner to install these offsite wells. S-K has requested assistance from the agencies in procuring offsite access.
2. The laboratory reports indicate that a hydrocarbon material was detected in the October 1991 ground-water samples from wells A-2 and A-3 which cannot be qualitatively identified as mineral spirits. S-K is working with GTEL Laboratories to accurately qualify this material as well as the oil/waste oil material identified in several of the soil samples.
3. The SVES has frequently shut down due to excessive water accumulation from moisture in the vapor stream. S-K monitors the SVES on a daily basis and periodically drains collected water to maintain continuous operation of the system. S-K anticipates that the rate of water accumulation will decline once the concrete placed over the former USTs excavation. This will prevent surface water from infiltrating into the soils.

Projected Work for Next Reporting Period

1. S-K will continue with implementation of closure and remediation activities in accordance with the approved

Regional Administrator
December 31, 1991
Page 6

Closure Plan. Activities scheduled during the next quarter include:

- a. Completing construction of the concrete pavement cap over the former USTs excavation;
 - b. Quarterly monitoring of the performance and operation of the soil venting system (next monitoring event scheduled for January 1992); and
 - c. Conducting the next quarterly ground-water monitoring event scheduled for January 1992.
2. S-K will complete the health-based risk assessment and continue working with KDHE and USEPA to develop acceptable closure objectives during the remediation program.
 3. S-K will coordinate the installation of additional monitoring wells to define the southeasterly extent of subsurface degradation. The additional offsite monitoring wells will be incorporated into the ongoing monitoring program.
 4. S-K intends to design an appropriate ground-water remediation program to achieve clean closure. S-K will work with KDHE and USEPA to implement an effective ground-water remediation program following definition of the extent of impacts.
 5. S-K intends to meet with KDHE in mid-January 1992 to discuss the project status.
 6. S-K will submit the next quarterly progress report on or by March 31, 1992.

Sincerely,
SAFETY-KLEEN CORP.


Gary Long
Project Manager-Remediation

SD:TM:ahj/462

cc: Siew Kour - KDHE
TriHydro Corporation

ATTACHMENT A

BASELINE SOIL QUALITY STUDY
SOIL VAPOR EXTRACTION SYSTEM
PARTIAL FACILITY CLOSURE
SAFETY-KLEEN CORP.
WICHITA, KANSAS

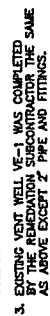


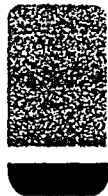
FIGURE A-1
SOIL VAPOR EXTRACTION SYSTEM
"AS-BUILT" VENT WELL LOCATIONS,
SAFETY-KLEEN CORP. BRANCH
SERVICE CENTER, WICHITA, KANSAS

Table A-1. Soil Quality Data - SVES Baseline Soil Boring Results, July 1991, Safety-Kleen Corp.
Branch Service Center, Wichita, Kansas.

Borehole Depth Interval (ft-bgs)	Metals (mg/kg)	Mineral Spirits (mg/kg)	Volatile Organic Compounds (38) (mg/kg)	Naphthalene (mg/kg)
VE-2 11.5-12.0	Cadmium ND(1.0) Chromium 1.4 Lead ND(3.0)	2200	All ND	1.6
VE-3 6.5-7.0	Cadmium ND(1.0) Chromium 3.9 Lead 3.4	ND(3.0)	All ND	ND(0.33)
VE-4 12.0-12.5	Cadmium ND(1.0) Chromium 1.3 Lead ND(3.0)	4000	Xylenes 7.2 All Others ND	4.3

Notes:

ND = Not Detected. Refer to laboratory data sheets for analytical detection limits.
ft-bgs = Feet below ground surface



GTEL

ENVIRONMENTAL
LABORATORIES, INC.

Midwest Region

4211 May Avenue
Wichita, KS 67209
(316) 945-2624
(800) 633-7936

Project Number: TRI02.SFK01
462

Work Order Number: X1-10-537
X1-10-538
X1-10-539
X1-10-853

*date file
= 462*

*Soil Quality Data
VE-2 - VE-4*

NOV 13 1991

Jack Bedessem
TriHydro Corporation
920 Sheridan St.
Laramie, WY 82070

Dear Mr. Bedessem:

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories on 10-15-91 under your chain-of-custody record.

A formal quality control/quality assurance program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the Kansas Department of Health and Environment to perform analyses for drinking water, wastewater, and hazardous waste materials according to approved protocols.

If you have any questions concerning this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,


Terry R. Loucks
Laboratory/Director

cc: Scott Davies
Safety Kleen
777 Big Timber Rd.
Elgin, IL 60123

GTEL Wichita, KS
COVLET.SET

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-537
Date Reported: 11-01-91

Table 1

ANALYTICAL RESULTS

Volatile Organics in Soil
Modified EPA Method 8240^a

GTEL Sample Number		01	02	03	
Client Identification		VE-4 12-12.5'	VE-3 6.5-7'	VE-2 11.5-12'	
Date Sampled		10-15-91	10-15-91	10-15-91	
Date Analyzed		10-28-91 ^{fg}	10-28-91 ^h	10-28-91 ^{fg}	
Analyte	PQL ug/Kg ^b	Concentration, ug/Kg ^c			
Chloromethane	10	<10000	<10	<10000	
Bromomethane	10	<10000	<10	<10000	
Vinyl Chloride	10	<10000	<10	<10000	
Chloroethane	10	<10000	<10	<10000	
Methylene Chloride	5	<5000	<5	<5000	
Acetone	100	<100000	<100	<100000	
Carbon Disulfide	5	<5000	<5	<5000	
1,1-Dichloroethene	5	<5000	<5	<5000	
1,1-Dichloroethane	5	<5000	<5	<5000	
1,2-Dichloroethene (total)	5	<5000	<5	<5000	
Chloroform	5	<5000	<5	<5000	
1,2-Dichloroethane	5	<5000	<5	<5000	
2-Butanone	100	<100000	<100	<100000	
1,1,1-Trichloroethane	5	<5000	<5	<5000	
Carbon Tetrachloride	5	<5000	<5	<5000	
Vinyl Acetate	50	<50000	<50	<50000	
Bromodichloromethane	5	<5000	<5	<5000	
1,2-Dichloropropane	5	<5000	<5	<5000	
cis-1,3-Dichloropropene	5	<5000	<5	<5000	
Trichloroethene	5	<5000	<5	<5000	
Dibromochloromethane	5	<5000	<5	<5000	

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-537
Date Reported: 11-01-91

Table 1 (continued)

ANALYTICAL RESULTS

Volatile Organics in Soil
Modified EPA Method 8240^a

GTEL Sample Number		01	02	03	
Client Identification		VE-4 12-12.5'	VE-3 6.5-7'	VE-2 11.5-12'	
Date Sampled		10-15-91	10-15-91	10-15-91	
Date Analyzed		10-28-91 ^{fg}	10-28-91 ^h	10-28-91 ^{fg}	
Analyte	PQL, ug/Kg ^b	Concentration, ug/Kg ^c			
1,1,2-Trichloroethane	5	<5000	<5	<5000	
Benzene	5	<5000	<5	<5000	
2-Chloroethylvinyl Ether	10	<10000	<10	<10000	
<i>trans</i> -1,3-Dichloropropene	5	<5000	<5	<5000	
Bromoform	5	<5000	<5	<5000	
4-Methyl-2-Pentanone	50	<50000	<50	<50000	
2-Hexanone	50	<50000	<50	<50000	
Tetrachloroethene	5	<5000	<5	<5000	
1,1,2,2-Tetrachloroethane	5	<5000	<5	<5000	
Toluene	5	<5000	<5	<5000	
Chlorobenzene	5	<5000	<5	<5000	
Ethylbenzene	5	<5000	<5	<5000	
Styrene	5	<5000	<5	<5000	
Xylenes (total)	5	7200	<5	<5000	
1,2-Dichlorobenzene	5	<5000	<5	<5000	
1,3-Dichlorobenzene	5	<5000	<5	<5000	
1,4-Dichlorobenzene	5	<5000	<5	<5000	
PQL Multiplier ^e		1000	1	1000	
Percent Solids		98	98	98	

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-537
Date Reported: 11-01-91

Footnotes to Table 1

ANALYTICAL RESULTS

Volatile Organics in Soil EPA Method 8240^a

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, Table 2, US EPA November 1986; low level preparation and methanol extraction per EPA Method 5030. Results are calculated on a wet weight basis.
- b Practical Quantitation limit.
- c Data Flag Definitions
 - J Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the quantitation limit, but greater than zero, or when reporting an estimated concentration for a tentatively identified compound.
 - B Indicates that the analyte was found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- e Indicates the adjustments made for sample dilution.
- f GC/MS RIC data indicates the presence of nontarget hydrocarbons.
- g 1 out of 3 surrogates were outside of control limits due to matrix effects.
- h 2 out of 3 surrogates were outside of control limits in the lowest dilution analyzed, however, at a higher dilution all surrogates were in control.

NOTE: Sample temperature when received at the laboratory was 6 °C.

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-538
Date Reported: 11-05-91

Table 1

ANALYTICAL RESULTS

Total Petroleum Hydrocarbons as Mineral Spirits in Soil
GC/FID^a

Sample Identification		Date Extracted	Date Analyzed	Concentration, mg/kg	Detection Limit, mg/kg	% Solids
GTEL No.	Client ID					
01	VE-4 (12.0-12.5)	11-01-91	11-03-91	4000	3	98
02	VE-3 (6.5-7.0)	11-01-91	11-02-91	<3	3	98
03	VE-2 (11.5-12.0)	11-01-91	11-03-91	2200	3	98

- a ASTM Method D3328(modified) is used for qualitative identification of fuel patterns. The method has been modified to include quantitation by applying calibration and quality assurance guidelines outlined in EPA's publication, Test Methods For Evaluating Solid Waste, SW846, Third Edition, Revision 0, November 1986. Extraction by modified EPA Method 3550. Results are calculated on a wet weight basis.

NOTE: Sample temperature when received at the laboratory was 6 °C.

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-539
Date Reported: 11-05-91

Table 1
ANALYTICAL RESULTS
Metals in Soil^a

GTEL Sample Number			01	02	03	
Client Identification			VE-4 12.0-12.5	VE-3 6.5-7.0	VE-2 11.5-12.0	
Date Sampled			10-15-91	10-15-91	10-15-91	
Date Digested			11-01-91	11-01-91	11-01-91	
Date Analyzed			11-04-91	11-04-91	11-04-91	
Analyte	Method	QL,* mg/Kg	Concentration, mg/Kg			
Cadmium	EPA 7130	1	<1.0	<1.0	<1.0	
Chromium	EPA 7191	1	1.3	3.9	1.4	
Lead	EPA 7421	3	<3.0	3.4	<3.0	
Percent Solids			98	98	98	

a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Digestion by Method 3050.
* Quantitation Limit.

NOTE: Sample temperature when received at the laboratory was 6 °C.

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-853
Date Reported: 11-13-91

Table 1
ANALYTICAL RESULTS
Naphthalene in Soil
EPA Method 8270^a

GTEL Sample Number		01	02	03	
Client Identification		VE-4 12-12.5'	VE-3 6.5-7'	VE-2 11.5-12'	
Date Sampled		10-15-91	10-15-91	10-15-91	
Date Extracted		10-28-91	10-28-91	10-28-91	
Date Analyzed		11-01-91	11-01-91	11-01-91	
Analyte	PQL ^b ug/Kg	Concentration, ug/Kg			
Naphthalene	330	4300	<330	1600	
PQL ^b Multiplier		5	1	1	
Percent Solids		98	98	98	

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, Table 2, US EPA November 1986; extraction per EPA Method 3550 (sonication).
- b Practical quantitation limit.
- c Data Flag Definitions
- J Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the quantitation limit, but greater than zero, or when reporting an estimated concentration for a tentatively identified compound.
- B Indicates that the analyte was found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- e Practical quantitation limit multiplier indicates the adjustments made for sample dilution.

NOTE: Sample temperature when received at the laboratory was 6 °C.

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project No.: 462		Today's Date: 10/15/91		Date Results Requested: 11/15/91		Analyses Requested: Volatile Organics (8240) GC/FID as mineral spirits (modified 8015) metals, Total: Cd, Cr, Pb (6010) Nephthene	
Sampler's Name: SCOTT GUSTIN/Jim Colbert		Phone No.: 307-745-7474		Fax No.: 307-745-7729			
Company Name and Address: Trihydro Corporation 920 Sheridan Laramie, WY 82070		Company Contact: Jack Bedessem/SCOTT GUSTIN					
Collector's Sample No.	Sample Matrix	Date Sampled/ Time Sampled	No. of Containers				
VF-4 (120-125)	SOIL	10-15-91/	1	call of the above ↓ 10- VOA-XI-537			
VE-3 (65-70)	soil	10-15-91/	1				
VE-2 (115-120)	soil	10-15-91/	1				
				MSP-XI-10-538			
				Metals-XI-10-539			
				SVOA-XI-10-853 Addition			
Remarks: SAMPLES WERE PLACED IN COOLER WITH ICE IMMEDIATELY UPON COLLECTION.							
Relinquished by: Scott Gustin	Affiliation: Trihydro Corp.	Date/Time: 10-15-91 / 1640	Received by:	Affiliation:	Date/Time:		
Relinquished by:	Affiliation:	Date/Time:	Received by:	Affiliation:	Date/Time:		
Relinquished by:	Affiliation:	Date/Time:	Received by: Thomas Jones	Affiliation: GTEC	Date/Time: 10/15/91 16:40		
Were samples received in good condition? Yes			Remarks: 5.6°C 2-F-4				

ATTACHMENT B

GROUND-WATER QUALITY DATA
PARTIAL FACILITY CLOSURE
SAFETY-KLEEN CORP.
WICHITA, KANSAS

Table B-1. Monitoring Well Completion Summary, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas.

Well	Date of Measurement	Approximate Grade Elevation (ft-datum) ¹	Measuring Point Elevation (ft-datum) ¹	Total Depth Cased (ft-bgs) ²	Casing Diameter (in)	Casing Type	Elevation Screened Interval (ft-datum) ¹	Depth to Hydrocarbon (ft-bmp) ³	Gauged Depth to Water (ft-bmp) ³	Hydrocarbon Thickness (ft)	Corrected Static Water Elevation (ft-datum) ¹	Total Depth Measured (ft-bmp) ³
A-1	10-19-89	100.5	100.48	17.5	4	PVC	83.5-93.5	--	11.18	--	89.30	17.5
	11-16-89							--	11.33	--	89.25	--
	06-07-90							--	11.39	--	89.09	--
	07-18-91							--	12.66	--	87.82	--
A-2	10-14-91							--	12.38	--	88.10	17.5
	10-19-89	110.7	100.71	19.5	4	PVC	81.7-91.7	--	11.59	--	89.12	19.5
	11-16-89							--	12.23	--	88.96	--
	06-07-90							--	11.81	--	88.90	--
A-3	07-18-91							--	13.09	--	87.62	19.15
	10-14-91							--	12.83	--	87.88	19.5
	10-19-89	101.2	101.22	18.5	4	PVC	83.2-93.2	--	12.75	--	88.47	18.5
	11-16-89							--	12.25	--	88.97	--
A-4	06-07-90							--	12.27	--	88.95	--
	07-18-91							--	13.59	--	87.63	17.84
	10-14-91							--	13.32	--	87.90	18.5
	10-19-89	101.3	101.25	18.5	4	PVC	83.3-93.3	--	12.80	--	88.45	18.5
A-5	11-16-89							--	11.75	--	89.02	--
	06-07-90							--	12.28	--	88.97	--
	07-18-91							13.30	14.59	1.29	87.67	17.85
	10-14-91							13.25	13.65	0.40	87.91	18.5
A-5	10-19-89	--	--	--	--	--	--	--	--	--	--	--
	07-18-91	101.8	101.77	19.7	4	PVC	82.4-92.4	--	14.04	--	87.73	19.40
	10-14-91							--	13.80	--	87.97	19.0

Notes: ¹ Datum is an assigned elevation of 100 feet for the top of the casing of the existing water well on the Safety-Kleen site.
² bgs = below ground surface
³ bmp = below measuring point

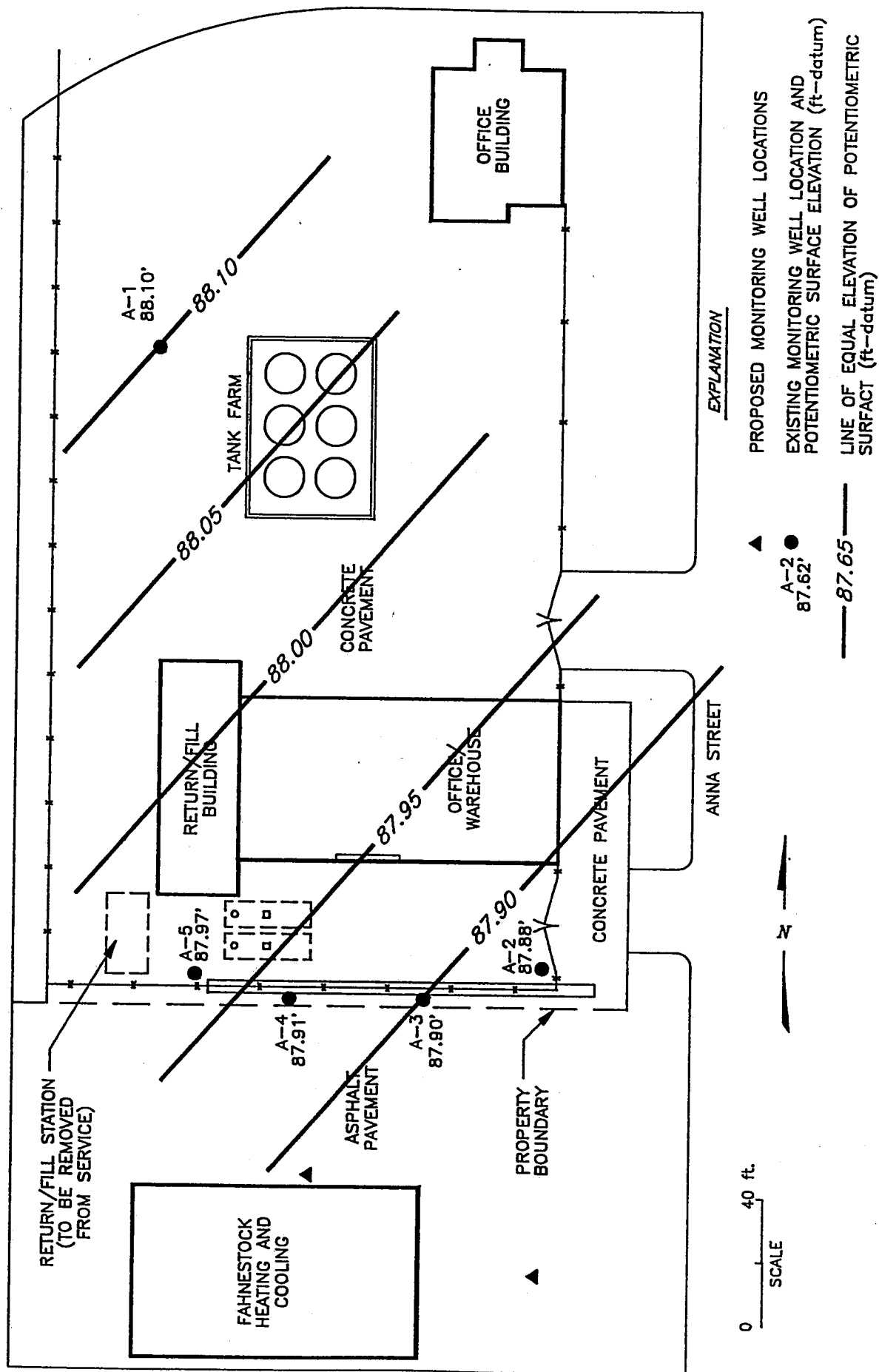


FIGURE B-1 :GROUND-WATER MONITORING WELL NETWORK AND POTENTIOMETRIC SURFACE ELEVATIONS, SAFETY-KLEEN CORP., WICHITA, KANSAS (October 1991)

Table B-2. Summary of Ground-Water Quality Data, Organic Constituents, Safety-Kleen Corp. Branch Center, Wichita, Kansas.

Volatile Organic Constituents (mg/L)											
Well	Sampling Date	Mineral Spirits	1,2-Dichloro-ethane	1,2-Dichloro-ethene (total)	1,1,1-Tri-chloroethane	Toluene	Ethyl-benzene	Xylenes (total)	1,2-Dichloro-benzene	1,4-Dichloro-benzene	All Others
A-1	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	10-14-91	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
A-2	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	10-14-91	ND(0.200)	ND(0.005)	0.008	ND(0.005)	ND(0.005)	ND(0.005)	0.011	0.007	ND(0.005)	ND
A-3	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	ND
	7-18-91	0.120	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	0.006	ND(0.005)	ND
	10-14-91	ND(0.500)	0.007	0.013	ND(0.005)	ND(0.005)	0.013	0.028	0.028	0.011	ND
A-4	10-19-89	ND(0.05)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	7-18-91	150	ND(0.005)	0.020	0.008	0.045	0.032	0.250	0.046	0.017	ND
	10-14-91	600	ND(0.010)	0.013	ND(0.010)	0.041	0.060	0.450	0.083	0.036	ND
A-5	10-19-89	--	--	--	--	--	--	--	ND(0.005)	--	ND
	7-18-91	ND(0.09)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND
	10-14-91	ND(0.090)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	ND(0.005)	ND
S-K Tap	10-19-89	ND(50.0)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	--	--	--
KAL	--	--	0.005	0.070	0.200	2.0	0.680	0.440	0.620	0.075	--
MCL	--	--	0.005	0.07/0.10*	0.200	1.0	0.70	10.0	0.60	0.075	--

ND = not detected above analytical limits in parentheses.

-- indicates sample not analyzed for constituent.

Samples collected in October 1989 were analyzed for 40 CFR 264 Appendix IX volatile and semi-volatile organic compounds (Well A-4 only). All ND.

Samples collected in July and October 1991 were analyzed for mineral spirits by modified 8015 and volatile organic compounds by 8240 (SW-846).

KAL = Kansas Action Level

MCL = USEPA maximum contaminant level

* USEPA MCL for cis-1,2-Dichloroethene and trans-1,2-Dichloroethene

Field and equipment blanks were prepared during the October 1991 monitoring event to verify QA/QC. None of the constituents analyzed for were detected in the blanks.

Table B-3. Summary of Ground-Water Quality Data, Inorganic Constituents, Safety-Kleen Corp. Branch Service Center, Wichita, Kansas.

Well	Sampling Date	Inorganic Constituents (mg/L)		
		Cadmium	Chromium	Lead
A-1	10-19-89	ND(0.01)	ND(0.04)	0.004
	7-18-91	ND(0.005)	0.060	ND(0.005)
	10-14-91	ND(0.005)	0.980	0.025
A-2	10-19-89	ND(0.01)	ND(0.04)	ND(0.003)
	7-18-91	ND(0.005)	ND(0.010)	ND(0.005)
	10-14-91	ND(0.005)	ND(0.020)	0.007
A-3	10-19-89	ND(0.01)	0.05	0.009
	7-18-91	ND(0.01)	0.016	ND(0.005)
	10-14-91	ND(0.005)	ND(0.020)	0.023
A-4	10-19-89	ND(0.01)	ND(0.04)	0.014
	7-18-91	ND(0.005)	0.016	ND(0.005)
	10-14-91	ND(0.005)	ND(0.020)	0.150
A-5	7-18-91	ND(0.005)	0.013	ND(0.005)
	10-14-91	ND(0.005)	0.027	0.034
S-K Tap	10-19-89	ND(0.01)	ND(0.04)	ND(0.003)
KAL	--	0.005	0.050	0.050
MCL	--	0.005	0.10	0.050

ND = Not Detected above analytical detection limits in parentheses.

KAL = Kansas Action Level

MCL = USEPA Maximum Contaminant Level



GTEL

ENVIRONMENTAL
LABORATORIES, INC.

Midwest Region

4211 May Avenue
Wichita, KS 67209
(316) 945-2624
(800) 633-7936

Project Number: TRI02.SFK01
462

Work Order Number: X1-10-497
X1-10-498
X1-10-499

*Data File
#462*

*Oct 1991
Water Quality Data*

November 12, 1991

Jack Bedessem
TriHydro Corporation
920 Sheridan St.
Laramie, WY 82070

Dear Mr. Bedessem:

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories on 10-14-91 under your chain-of-custody record.

A formal quality control/quality assurance program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the Kansas Department of Health and Environment to perform analyses for drinking water, wastewater, and hazardous waste materials according to approved protocols.

If you have any questions concerning this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,

Terry R. Loucks /cp

Terry R. Loucks
Laboratory Director

cc: Scott Davies
Safety Kleen
777 Big Timber Rd.
Elgin, IL 60123

GTEL Wichita, KS
COVLET.SET

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-497
Date Reported: 10-31-91

Table 1

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8240^a

GTEL Sample Number		01	02	03	04
Client Identification		A-1	A-2	A-3	A-4
Date Sampled		10-14-91	10-14-91	10-14-91	10-14-91
Date Analyzed		10-24-91	10-24-91 ^f	10-25-91 ^f	10-25-91 ^f
Analyte	POL ug/L ^b	Concentration, ug/L ^c			
Chloromethane	10	< 10	< 10	< 10	< 20
Bromomethane	10	< 10	< 10	< 10	< 20
Vinyl Chloride	10	< 10	< 10	< 10	< 20
Chloroethane	10	< 10	< 10	< 10	< 20
Methylene Chloride	5	< 5	< 5	< 5	< 10
Acetone	100	< 100	< 100	< 100	< 200
Carbon Disulfide	5	< 5	< 5	< 5	< 10
1,1-Dichloroethene	5	< 5	< 5	< 5	< 10
1,1-Dichloroethane	5	< 5	< 5	7	< 10
1,2-Dichloroethene (total)	5	< 5	8	13	13
Chloroform	5	< 5	< 5	< 5	< 10
1,2-Dichloroethane	5	< 5	< 5	< 5	< 10
2-Butanone	100	< 100	< 100	< 100	< 200
1,1,1-Trichloroethane	5	< 5	< 5	< 5	< 10
Carbon Tetrachloride	5	< 5	< 5	< 5	< 10
Vinyl Acetate	50	< 50	< 50	< 50	< 100
Bromodichloromethane	5	< 5	< 5	< 5	< 10
1,2-Dichloropropane	5	< 5	< 5	< 5	< 10
cis-1,3-Dichloropropene	5	< 5	< 5	< 5	< 10
Trichloroethene	5	< 5	< 5	< 5	< 10
Dibromochloromethane	5	< 5	< 5	< 5	< 10

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-497
Date Reported: 10-31-91

Table 1 (continued)
ANALYTICAL RESULTS
Volatile Organics in Water
Modified EPA Method 8240^a

GTEL Sample Number		01	02	03	04
Client Identification		A-1	A-2	A-3	A-4
Date Sampled		10-14-91	10-14-91	10-14-91	10-14-91
Date Analyzed		10-24-91	10-24-91 ^f	10-25-91 ^f	10-25-91 ^f
Analyte	PQL ug/L ^b	Concentration, ug/L ^c			
1,1,2-Trichloroethane	5	<5	<5	<5	<10
Benzene	5	<5	<5	<5	<10
2-Chloroethylvinyl Ether	10	<10	<10	<10	<20
<i>trans</i> -1,3-Dichloropropene	5	<5	<5	<5	<10
Bromoform	5	<5	<5	<5	<10
4-Methyl-2-Pentanone	50	<50	<50	<50	<100
2-Hexanone	50	<50	<50	<50	<100
Tetrachloroethene	5	<5	<5	<5	<10
1,1,2,2-Tetrachloroethane	5	<5	<5	<5	<10
Toluene	5	<5	<5	<5	41
Chlorobenzene	5	<5	<5	<5	<10
Ethylbenzene	5	<5	<5	13	60
Styrene	5	<5	<5	<5	<10
Xylenes (total)	5	<5	11	28	450
1,2-Dichlorobenzene	5	<5	7	28	83
1,3-Dichlorobenzene	5	<5	<5	<5	<10
1,4-Dichlorobenzene	5	<5	<5	11	36
PQL Multiplier ^e		1	1	1	2

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-497
Date Reported: 10-31-91

Table 1
ANALYTICAL RESULTS
Volatile Organics in Water
Modified EPA Method 8240^a

GTEL Sample Number		05	06	07	
Client Identification		A-5	EB-462	FB-462	
Date Sampled		10-14-91	10-14-91	10-14-91	
Date Analyzed		10-24-91	10-24-91	10-25-91	
Analyte	PQL ug/L ^b	Concentration, ug/L ^c			
Chloromethane	10	<10	<10	<10	
Bromomethane	10	<10	<10	<10	
Vinyl Chloride	10	<10	<10	<10	
Chloroethane	10	<10	<10	<10	
Methylene Chloride	5	<5	<5	<5	
Acetone	100	<100	<100	<100	
Carbon Disulfide	5	<5	<5	<5	
1,1-Dichloroethene	5	<5	<5	<5	
1,1-Dichloroethane	5	<5	<5	<5	
1,2-Dichloroethene (total)	5	<5	<5	<5	
Chloroform	5	<5	<5	<5	
1,2-Dichloroethane	5	<5	<5	<5	
2-Butanone	100	<100	<100	<100	
1,1,1-Trichloroethane	5	<5	<5	<5	
Carbon Tetrachloride	5	<5	<5	<5	
Vinyl Acetate	50	<50	<50	<50	
Bromodichloromethane	5	<5	<5	<5	
1,2-Dichloropropane	5	<5	<5	<5	
cis-1,3-Dichloropropene	5	<5	<5	<5	
Trichloroethene	5	<5	<5	<5	
Dibromochloromethane	5	<5	<5	<5	

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-497
Date Reported: 10-31-91

Table 1 (continued)

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8240a

GTEL Sample Number		05	06	07	
Client Identification		A-5	EB-462	FB-462	
Date Sampled		10-14-91	10-14-91	10-14-91	
Date Analyzed		10-24-91	10-24-91	10-25-91	
Analyte	PQL ug/L ^b	Concentration, ug/L ^c			
1,1,2-Trichloroethane	5	<5	<5	<5	
Benzene	5	<5	<5	<5	
2-Chloroethylvinyl Ether	10	<10	<10	<10	
<i>trans</i> -1,3-Dichloropropene	5	<5	<5	<5	
Bromoform	5	<5	<5	<5	
4-Methyl-2-Pentanone	50	<50	<50	<50	
2-Hexanone	50	<50	<50	<50	
Tetrachloroethene	5	<5	<5	<5	
1,1,2,2-Tetrachloroethane	5	<5	<5	<5	
Toluene	5	<5	<5	<5	
Chlorobenzene	5	<5	<5	<5	
Ethylbenzene	5	<5	<5	<5	
Styrene	5	<5	<5	<5	
Xylenes (total)	5	<5	<5	<5	
1,2-Dichlorobenzene	5	<5	<5	<5	
1,3-Dichlorobenzene	5	<5	<5	<5	
1,4-Dichlorobenzene	5	<5	<5	<5	
PQL Multiplier ^e		1	1	1	

Table 1 continued on next page, footnotes at end of table

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-497
Date Reported: 10-31-91

Footnotes to Table 1

ANALYTICAL RESULTS

**Volatile Organics in Water
EPA Method 8240^a**

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, Table 2, US EPA November 1986; sample preparation per EPA Method 5030.
- b Practical quantitation limit.
- c Data Flag Definitions
 - B Indicates that the analyte was found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- e Indicates the adjustments made for sample dilution.
- f GCMS data indicated presence of non-target hydrocarbons.

Project Number: TRI02.SFK01
462
Work Order Number: X1-10-498
Date Reported: 11-12-91

Table 1

ANALYTICAL RESULTS

Total Petroleum Hydrocarbons as Mineral Spirits in Water
GC/FID^a

Sample Identification		Date Extracted	Date Analyzed	Concentration, ug/L	Detection Limit, ug/L
GTEL No.	Client ID				
01	A-1	10-22-91	11-04-91	<90	90
02	A-2	10-22-91	11-05-91	<200 *	90
03	A-3	10-22-91	11-05-91	<500 *	90
04	A-4	10-22-91	11-05-91	600000	90
05	A-5	10-22-91	11-04-91	<90	90
06	EB-462	10-22-91	11-05-91	<90	90
07	FB-462	10-22-91	11-05-91	<90	90

a ASTM Method D3328(modified) is used for qualitative identification of fuel patterns. The method has been modified to include quantitation by applying calibration and quality assurance guidelines outlined in EPA's publication, Test Methods For Evaluating Solid Waste, SW846, Third Edition, Revision 0, November 1986. Extraction by EPA Method 3510.

* Detection limits are elevated due to the presence of hydrocarbon material that can not be qualitatively identified as mineral spirits.

Project Number: TRI02.SFK01
462
Work Order: X1-10-499
Date Reported: 10-25-91

Table 1
ANALYTICAL RESULTS
Metals in Water^a

GTEL Sample Number			01	02	03	04
Client Identification			A-1	A-2	A-3	A-4
Date Sampled			10-14-91	10-14-91	10-14-91	10-14-91
Date Digested			10-17-91	10-17-91	10-17-91	10-17-91
Date Analyzed			10-22-91	10-22-91	10-22-91	10-22-91
Analyte	Method	QL,* ug/L	Concentration, ug/L			
Cadmium	EPA6010	5	<5	<5	<5	<5
Chromium	EPA6010	20	980	<20	<20	<20
Lead	EPA7421	5	25	7	23	150

GTEL Sample Number			05	06	07	
Client Identification			A-5	EB-462	FB-462	
Date Sampled			10-14-91	10-14-91	10-14-91	
Date Digested			10-17-91	10-17-91	10-17-91	
Date Analyzed			10-22-91	10-22-91	10-22-91	
Analyte	Method	QL,* ug/L	Concentration, ug/L			
Cadmium	EPA6010	5	<5	<5	<5	
Chromium	EPA6010	20	27	<20	<20	
Lead	EPA7421	5	34	<5	<5	

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Digestion by Method 3010/3020.
* Quantitation Limit.

GTEL Wichita, KS
110499W.MET



Project No.: 462		Today's Date: 10/14/91		Date Results Requested: 11/14/91	
Sampler's Name: SCOTT GUSTIN/Jim Colbert		Phone No.: 307-745-7474		Fax No.: 307-745-7729	
Company Name and Address: TriHydro Corporation 920 Sheridan Laramie, WY 82070		Company Contact: Jack Beckersm/SCOTT GUSTIN			
Collector's Sample No.	Sample Matrix	Date Sampled/ Time Sampled	No. of Containers	Analyses Requested	
A-1	Groundwater	10-14-91/1030	7	all of the above Volatile Organics (8240) GC/EED as Mineral Spirit (modified 8015) metals Total: cd, cr, Pb (6010)	
A-2		10-14-91/1250	7		
A-3		10-14-91/1500	7		
A-4		10-14-91/1530	7		
A-5		10-14-91/1130	7		
EB-462		10-14-91/1600	5	VDA - XI-10-497 MSP - XI-10-498 metals - XI-10-499	
FB-462		10-14-91/0830	6		
Remarks: SAMPLES WERE PLACED IN COOLER WITH ICE IMMEDIATELY UPON COLLECTION.					
Relinquished by:	Affiliation:	Date/Time:	Received by:	Affiliation:	Date/Time:
Scott Gustin	TriHydro Corp.	10/10/91-1615			
Relinquished by:	Affiliation:	Date/Time:	Received by:	Affiliation:	Date/Time:
			Monica Jones	GTCL	10/14/91 16:15
Relinquished by:	Affiliation:	Date/Time:	Were samples received in good condition?		
			yes		
Remarks:			Samples were just taken so have not had a chance to cool yet.		

NY 10/14/91